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CHRISTENSEN O'CONNOR JOHNSON KINDNESS PLLC
1420 FIFTH AVENUE
SUITE 2800
SEATTLE, WA 98101-2347

EXAMINER	
NGUYEN, AN T	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/520,175	FORSTER, IAN JAMES	
	Examiner	Art Unit	
	AN NGUYEN	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 January 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/17/2007; 12/7/2006* .
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

The abstract of the disclosure is objected to because it is more than 150 words long. Correction is required. See MPEP § 608.01(b).

Drawings

The drawings are objected to because Fig. 2, reference number 180 is a high frequency receiver according to the specification on page 9, line 16; Furthermore, Fig. 2 has an arrow pointing from the modulation translator 190 going into the high frequency receiver 180 where it should be the other way around to conform with the specification on page 10, line 2 to line 3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 17-20, 22-25, 29, 31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Salvador Claudio (EP 1209615 A2).

As per claim 17, Salvador discloses a reader interfacing device, comprising: a communication path between a reader configured to emit and receive interrogating radiation at a first radiation frequency, and a remote tag or smart label configured to be interrogated using radiation of a second frequency different from the first frequency by at least an order of magnitude, the reader being operable to communicate through the device to the remote tag or smart label **(Salvador paragraph 0017: "A transponder system according to the invention comprises an interrogating device BOA and at least one responding device TAG (one in figure 1) connected by a bi-directional cable-less communication system, where the interrogating device BOA and the at least one responding device TAG are provided with means for communicating through two distinct channels (L1, L2; figure 1), one of which (L1) allows the activation by the interrogating device BOA of a responding device TAG present in an activation area MFP while the other channel (L2) is bi.-directional and allows the data exchange between the interrogating device BOA and a responding device TAG positioned within a data exchange area RFP"; and paragraph 0018: "With reference to figure 1, the interrogating device BOA and the responding device TAG communicate through two distinct, not interfering transmitting channels (L1, L2), where L1 is a microwave transmitting channel which activates the responding device TAG while L2 is a radio frequency transmitting channel for bi-directional data exchange between the interrogating device BOA and the responding device TAG").**

As per claim 18, Salvador discloses the device according to claim 17, including power conversion means for converting the interrogating radiation received at the device from the reader to generate power supply potentials for powering the device **(Salvador paragraph "[0045] When the responding device TAG is within the activation area MFP of the microwave antenna B1 of the interrogating device BOA (position P2), the detecting diode of the responding device TAG receives the microwave signal coming from the interrogating device BOA and transfers it to the comparator CM" and "[0046] When the level of the continuous voltage sent to the comparator CM reaches a preset comparison value, the comparator CM emits a signal which reaches the control logic LC which manages the passage of the responding device TAG to the activation status" and "[0042] In the activation status the responding device TAG is able to communicate with the interrogating device BOA by using the transmitting channel RE").**

As per claim 19, Salvador discloses the device according to claim 17, wherein the device is mutually magnetically coupled to the reader for receiving the interrogating radiation therefrom and for providing a modulated load thereto for communicating back to the reader **(Salvador paragraph 0003: "At the present, transponders of known type use a radio transmission channel which may be a low frequency, a radio frequency or a microwave channel, depending on the application of the system and on the reference standards"; and paragraph 0004: "Among these, low frequency transponders are the most widespread because of their limited cost, but they work only at short distances (a few tens of centi-metres) because they use an inductive coupling between the interrogating device BOA and the responding devices TAG").**

As per claim 20, Salvador discloses the device according to claim 19, wherein the device includes a first loop antenna for magnetically coupling to a corresponding second loop antenna of the reader **(Salvador paragraph 0005: "Low frequency transponders are used prevalently for identification uses without contact. The short-distance inductive coupling allows the responding devices TAG to be energised directly through the interrogating device BOA, without using battery power supply". It is well known in the art that low frequency RFID system utilize inductive coupling by making use of magnetic field generated to interrogate and active the passive tag)**.

As per claim 22, Salvador discloses the device according to claim 17, wherein the second frequency is in a range of 300 MHz to 90 GHz **(Salvador paragraph 0018, line 20-21: "where L1 is a microwave transmitting channel which activates the responding device TAG" Take official notice, microwave frequencies is well known in the art and are typically in the range of 300 MHz to 300 GHz)**.

As per claim 23, Salvador discloses the device according to claim 22, wherein the device is configured to emit radiation to the remote tag or smart label and receive radiation therefrom using patch antennas **(Salvador paragraph 0038: "Without departing from the scope of the present invention, the responding device TAG is realised on a single printed circuit wherein the planar antenna T1 with a rectangular patch, coupled to the circuit section of the responding device TAG are realised")**.

As per claim 24, Salvador discloses the device according to claim 22, wherein the second frequency is substantially in a range of 2 GHz to 3 GHz **(Salvador paragraph 0021, line 40-41: "The microwave activation channel L1 is a microwave signal emitted by an oscillator OM." Take official**

notice, microwave frequencies are well known in the art and are typically in the range of 300 MHz to 300 GHz).

As per claim 25, Salvador discloses the device according to claim 17, including translating means for converting between a modulation format used by the reader for modulating information onto the interrogating radiation to be received by the device and a modulation format used by the remote tag or smart label for communicating therefrom to and from the device **(Salvador paragraph 0022, line 46-50: "The microwave activation signal emitted by the oscillator OM belonging to the interrogating device BOA may be variously modulated so as to avoid accidental activation by isofrequential disturbing sources or to create an information carrier").**

As per claim 29, Salvador discloses the device according to claim 17, wherein the reader includes optical interfacing means for providing the communication path between the reader and the device **(Salvador paragraph 0055: "For activation, a transmitter with millimetric waves or, in case, a transmitter operating at optic frequencies may be used instead of a microwave transmitter").**

As per claim 31, Salvador discloses the device according to claim 17, including optical interfacing means for providing the communication path between the device and the remote tag or smart label **(Salvador paragraph 0055: "For activation, a transmitter with millimetric waves or, in case, a transmitter operating at optic frequencies may be used instead of a microwave transmitter").**

As per claim 32, Salvador discloses a remote tag or smart label for use with a reader interfacing device comprising: a reader configured to emit and receive interrogating radiation at a first radiation frequency, the remote tag or smart label being configured to be interrogated using radiation of a second

frequency different from the first frequency by at least an order of magnitude, the reader being operable to communicate through the device to the remote tag or smart label **(Salvador paragraph 0017: "A transponder system according to the invention comprises an interrogating device BOA and at least one responding device TAG (one in figure 1) connected by a bi-directional cable-less communication system, where the interrogating device BOA and the at least one responding device TAG are provided with means for communicating through two distinct channels (L1, L2; figure 1), one of which (L1) allows the activation by the interrogating device BOA of a responding device TAG present in an activation area MFP while the other channel (L2) is bi.-directional and allows the data exchange between the interrogating device BOA and a responding device TAG positioned within a data exchange area RFP"; and paragraph 0018: "With reference to figure 1, the interrogating device BOA and the responding device TAG communicate through two distinct, not interfering transmitting channels (L1, L2), where L1 is a microwave transmitting channel which activates the responding device TAG while L2 is a radio frequency transmitting channel for bi-directional data exchange between the interrogating device BOA and the responding device TAG")**, the remote tag or smart label incorporating amplifying means for reflectively amplifying a received signal generated therein in response to receiving the interrogating radiation from the device, the amplified received signal being useable for providing response radiation receivable at the device **(Salvador paragraph 0005: "Low frequency transponders are used prevalently for identification uses without contact. The short-distance inductive coupling allows the responding devices TAG to be energized directly through the interrogating device BOA, without using battery power supply." and paragraph 0012: "A serious limit of the known transponders is therefore the fact that, by using the same transmission channel (or "layer") for activating the responding device TAG and for the communications between the responding device TAG and the interrogating device BOA and vice**

versa, the range of activation of the responding device TAG practically coincides with the range of communication, resulting in poor operative flexibility").

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Salvador Claudio (EP 1209615 A2) in view of Wolkstein et al. (Patent 4167681).

As per claim 21, Salvador discloses the device according to claim 20.

Salvador does not disclose wherein the device incorporates a modulated field effect transistor connected to the first loop antenna for providing a variable load detectable at the reader.

Wolkstein discloses wherein the device incorporates a modulated field effect transistor connected to the first loop antenna for providing a variable load detectable at the reader **(Wolkstein col. 4, line 60 to col. 5, line 9: "Each of the FETs in the stages of amplifiers 12 and 16 have first gate 38, second gate 39, drain 40 and source 42 electrodes as shown schematically on FET 44 in FIG. 4(a). In the preferred embodiment, FET 44 is a Gallium Arsenide (GaAs) metal semiconductor field effect transistor (MESFET), although other field effect type transistors such as, for example, junction field effect transistors (JFET), wherein the current is controlled by an electric field, may also be**

used. FET 44 may be biased by applying a dc voltage to second gate electrode 39 as by battery 46 through an inductor 48. The other terminal of battery 46 may be grounded. Biasing of FET 44 may also be achieved by pulsed voltages as well as by dc voltages. An input RF signal 41 is received at first gate electrode 38 and an output RF signal 43 is generated at drain electrode 40. Drain electrode 40 is biased by applying a suitable voltage to terminal 45 through an inductor 47").

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Salvador's reader interface by incorporating the field effect transistor connected to the antenna as taught by Wolkstein.

The motivation would be to provide a power limiting device capable of generating an RF signal at constant power level **(Wolkstein col. 2, line 60-63: "According to the present invention, a power limiter generates an output RF signal of substantially constant power level in response to an input RF signal of varying power level").**

3. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Salvador Claudio (EP 1209615 A2) in view of Carrender (PG Pub 2002/0149484 A1).

As per claim 26, Salvador discloses the device according to claim 25.

Salvador does not disclose wherein the translating means includes an amplitude demodulator for demodulating a first received signal generated in the device in response to receiving thereat the interrogating radiation from the reader and thereby generating a first demodulated signal, the translating means further including a modulator supplied with a carrier signal at the second frequency and operable to modulate the carrier signal with the first demodulated signal to generate radiation for interrogating the remote tag or smart label.

Carrender discloses wherein the translating means includes an amplitude demodulator for demodulating a first received signal generated in the device in response to receiving thereat the interrogating radiation from the reader and thereby generating a first demodulated signal **(Carrender paragraph 0025: "The low-noise amplifier 32 is electrically coupled to an input of the second divider 42, which receives the amplified reflected radio-frequency signal and divides the signal in two. The output of the second divider 42 is electrically coupled to a second input of the first mixer 36 and to the second input of the second mixer 40. The output of the first mixer 36 is coupled to a first amplifier 44 through a first final down-conversion circuit 47; and the output of the second mixer 40 is coupled to a second amplifier 46 through a second final down-conversion circuit 49. The down-conversion circuits 47, 49 further process the signal to accomplish the heterodyne conversion in a manner well-known in the art. The first amplifier 44 is coupled to a first demodulator 48 and the second amplifier 46 is coupled to a second demodulator 50. In this embodiment, both demodulators 48, 50 are FM demodulators, although it is to be understood that the demodulators can be amplitude or phase demodulators as required. Data contained within the processed radio-frequency signal is provided at the outputs of the first demodulator 48 and the second demodulator 50")**, the translating means further including a modulator supplied with a carrier signal at the second frequency and operable to modulate the carrier signal with the first demodulated signal to generate radiation for interrogating the remote tag or smart label **(Carrender paragraph 0028: "In one embodiment, the processor 54 is coupled to a memory 60 and the processor 54 generates control signals to store data in the memory 60 based on the data extracted from the transmitted radio-frequency signal. In another embodiment, the processor 54 is coupled to a modulator 56 and generates control signals to control the modulation of a reflected radio-frequency signal by the modulator 56, based on the data extracted from the received radio-frequency signal. The modulator 56 is coupled to the antenna 55 that then reflects the received radio-frequency signal as modulated**

by the modulator 56. In an exemplary embodiment, the processor 54 may generate control signals to store data in the memory and to control the modulator 56 based on data stored in the memory 60, data extracted from the transmitted radio-frequency signal, or some combination thereof. One skilled in the art will recognize that the RFID tag 53 may also contain other circuitry, including power circuitry 58, which may be passive, semi-passive or active").

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to modify Salvador's interfacing device by combining Carrender's mean for amplitude modulation/demodulation technique.

The motivation is well known in the art of communication system where the information to be send needs to be modulate with a carrier signal at a certain frequency before transmission and then demodulate at the receiving end.

4. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salvador Claudio (EP 1209615 A2) in view of Carrender (PG Pub 2002/0149484 A1) and further in view of Nysen (Patent 6107910).

As per claim 27, Salvador in view of Carrender discloses the device according to claim 26.

Salvador in view of Carrender does not disclose wherein the translating means includes a demodulator for heterodyne mixing a second received signal generated in response to receiving radiation from the remote tag or smart label with the carrier signal to generate a second demodulated signal for use in providing load modulation detectable at the reader.

Nysen discloses wherein the translating means includes a demodulator for heterodyne mixing a second received signal generated in response to receiving radiation from the remote tag or smart label with the carrier signal to generate a second demodulated signal for use in providing load modulation

detectable at the reader **(Nysen col. 37, line 29-49: "Due to the frequency change rate of the interrogation signal, as well as Doppler shift and round trip transmission delay of the interrogation pulse, the phase of the signal received from the antenna may change rapidly. With a chirp interrogation pulse, the difference between the emitted interrogation pulse and the reradiated signal will typically be less than about 3 kHz. This, however, is not the only possible type of interrogation signal. For example, a frequency hopping spread spectrum signal may be used, which will have extremely high maximum frequency change rates during hops. Since the hops are asynchronous with the symbol transmission from an active tag, it is important to be able to quickly track the desired signal through a range of hops. In this case, a heterodyne receiver topology is preferred, with an intermediate frequency (IF), for example 900 MHz, mixed with the return signal and a hopping frequency of between 5-25 MHz subsequently mixed with the output of the IF mixer. During frequency hop transitions, it is likely that the demodulator will generate artifacts, which may be identified and/or corrected by appropriate processing according to the present invention")**.

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to modify Salvador in view of Carrender's interface device by combining Nysen's demodulator for heterodyne mixing frequencies.

The motivation is also well known in the art of communication that heterodyne mixing of frequencies is to extract the desired frequency, in this case the lower frequency after demodulation.

As per claim 28, Salvador in view of Carrender and Nysen discloses the device according to claim 27, wherein the carrier signal is generated by a microwave oscillator frequency locked to the first frequency **(Carrender paragraph 0019: "The frequency-hopping source 24 is readily commercially available and will not be described in detail herein. One skilled in the art will recognize that there are many ways of implementing the frequency-hopping source 24. For example, a digital controller**

(not shown) can be configured to generate a pseudo-random code that is converted to an analog signal by a digital-to-analog converter. The resulting analog signal can be used to control a voltage-controlled oscillator which generates the pseudo-randomly selected radio frequency signals").

5. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Salvador Claudio (EP 1209615 A2) in view of Wei (CN 2304947).

As per claim 30, Salvador discloses the device according to claim 29.

Salvador does not disclose wherein the interfacing means includes a laser scanner and a liquid crystal display, the scanner being operable to scan information presented on the display to provide information exchange between the reader and the device.

Wei discloses wherein the interfacing means includes a laser scanner and a liquid crystal display, the scanner being operable to scan information presented on the display to provide information exchange between the reader and the device **(Wei page 4 line 30 to page 5 line 1: "With reference to Fig. 3, this utility model is formed by power supply 31, reset key (RESET) 32, single-plate device 33, bar code interfacing circuit 344 liquid crystal or light-emitting diode state display 35" and page 5, line 17-21: "After a bar code ticket is read in by a laser reader, data are sent by bar code interfacing circuit 34 to single-plate device 33 for processing. After reading and writing, a plurality of real-time states are displayed by displayer 35").**

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Salvador's interface device by combining a laser scanner, a liquid crystal display capable of displaying information exchange between the reader and the device as taught by Wei.

The motivation would be to provide a convenience for sub-way passengers and Subway ticketing management **(Abstract: "They are formed into a single object, and use jointly a single-plate device**

to process the data of the RF cards and the bar codes, realizing non-contact and non-directional identification of bar codes and RF cards. It provides convenience for subway passengers and Subway ticketing management").

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AN NGUYEN whose telephone number is (571) 270-5167. The examiner can normally be reached on M-F 8:30 AM-6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Zimmerman can be reached on (571) 272-3059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AN/
Patent Examiner
Art Unit 2612

/Brian A Zimmerman/
Supervisory Patent Examiner, Art Unit 2612